Amendments to the specification

1) page 5, fourth paragraph, please replace the paragraph with the following amended paragraph:

Yet another objective of the invention is to improve resistive performance of via plugs by removing contact inhibiting materials [[form]] from surfaces over which contact plugs are formed.

2) page 5, last paragraph, page 6, first paragraph, please replace the paragraph with the following amended paragraph:

In accordance with the objectives of the invention a new method is provided for the removal of solvents from exposed surfaces after an etch stop layer has been removed. [[Exposed surface]] The exposed surfaces are treated with a first plasma etch followed by a DI water rinse after which a second plasma etch of the exposed surfaces is performed. By selecting the chemistry and the conditions for the first and the second plasma etch, polymer residues and formed copper oxide residues are removed from the exposed surfaces.

3) page 6, second paragraph, please replace the paragraph with the following amended paragraph:

[[Figs]] Figs. 1 through 3 show prior art processing steps that are required for the creation of a dual damascene structure, as follows:

4) page 6, second paragraph, please replace the paragraph with the following amended paragraph:

[[Fig.]] Figs. 5a through 5d show depositions of polymers and the removal [[of solvents]] thereof from exposed surfaces of a via opening.

5) page 9, last paragraph, page 10, first paragraph, please replace this text with the following amended paragraph:

Fig. 2[[,]] shows how, before the etch for the trench of the dual damascene structure takes place, an Anti Reflective Coating (ARC), layer 24, has been deposited inside opening 22 and over the top surface of layer 20 of SiON. This layer 24 serves the purpose of allowing the creation of a via opening of small dimensions by eliminating or diminishing effects of light

reflection and dispersion during the exposure for the creation of the opening 23. This layer 24 further serves the function of protecting the etch stop layer 12 at the bottom of this opening [[2]] 23. The ARC layer 24 also allows, due to its protective nature, for a decrease in the thickness of layer 12 whereby layer 12 continues to serve as a stop layer during the first etch (to create the lower section of the dual damascene structure). The deposition of layer 24 of ARC further allows for a decrease in the thickness of the Inter Metal Dielectric (IMD) layer 18, thereby providing a level of control over the profile of the created opening of the dual damascene structure.

6) page 12, last paragraph, page 13, first paragraph, please replace this text with the following amended paragraph:

Solvents are typically applied after etching of the etch stop layer has been completed. These solvents are applied in order to remove accumulated deposits of polymer from the surface of the underlying layer of copper and from the sidewalls of the via opening that has been created as part of the process of creating a dual damascene structure.

The [[solvents]] polymers may however become trapped inside the opening of the dual damascene structure, resulting in high contact resistance between the dual damascene structures and the underlying layer of copper with which the dual damascene makes electrical contact.

The trend in the art is further to use dielectrics (for the layers of dielectric in which the dual damascene structure is created) of low dielectric constant value, this in order to [[improved]] improve overall device performance. Low-k dielectrics are known to be relatively porous and are therefore prone to absorb a significant amount of the solvent, further having a negative effect on the performance of the dielectric and the created device. As a further consideration in the application of solvents must be included the cost of the solvents that are used, which tends to be high.

7) page 18, second paragraph, please replace the paragraph with the following amended paragraph:

The effects of the steps of the invention are further highlighted using [[Fig.]] Figs. 5a through 5d, as follows:

8) page 5, last paragraph, page 6, first paragraph, please replace this text with the following amended paragraph:

In accordance with the objectives of the invention a new method is provided for the removal of [[solvents]] polymer from exposed surfaces after an etch stop layer has been removed. Exposed surface are treated with a first plasma etch followed by a DI water rinse after which a second plasma etch of exposed surfaces is performed. By selecting the chemistry and the conditions for the first and the second plasma etch, polymer residues and formed copper oxide residues are removed from exposed surfaces.

9) page 29, please replace the ABSTRACT with the following amended ABSTRACT:

A new method is provided for the removal of [[solvents]] polymer from exposed surfaces after an etch stop layer has been removed. Exposed surface are treated with a first plasma etch followed by a DI water rinse after which a second plasma etch of exposed surfaces is performed. By selecting the chemistry and the conditions for the first and the second plasma etch, polymer

residues and formed copper oxide residues are removed from exposed surfaces.

10) page 1, first paragraph, please replace this text with the following amended paragraph:

The invention relates to the fabrication of integrated circuit devices, and more particularly, to a method of removing [[etch solvent]] polymer from [[the]] a surface that has been etched as part of creating a damascene structure.

11) page 4, first paragraph, please replace this text with the following amended paragraph:

Etch stop layers are frequently used during the process of creating dual damascene structures. The art is aggressively moving toward semiconductor devices with sub-micron and deep sub-micron device features. For these devices, the creation of via holes and the effect that the deposits of [[solvents]] polymers has on the performance of via plugs become critical issues. An etch stop layer must typically be removed from the bottom of a via hole in order to contact the underlying layer of metal. Remnants of [[solvents]] polymers typically have a

severely negative effect on resistive contact performance of via plugs and must therefore be removed as part of the process of creating via plugs. The invention provides a method that effectively removes such [[solvents]] polymers. This is a requirement for the creation of devices with deep sub-micron dimensions, which comprises the creation of via holes with a 0.13 μm diameter.

12) page 5, second paragraph, please replace this text with the following amended paragraph:

A principle objective of the invention is to remove [[solvents]] polymers from semiconductor surfaces.